

What is claimed is:

1. A datagram transmission device comprising:

first search means that reads the destination address from a received datagram and searches for a transmission

5 control rule corresponding to the destination address;

one or a plurality of second search means that reads prescribed information other than the destination address information from said datagram and that searches for a transmission control rule corresponding to the information that has thus been read;

decision means that respectively inputs search results from said first and second search means and determines said transmission control rule contained in the search results of all of said search means; and

execution means that executes transmission control in accordance with said transmission control rule determined by said decision means.

20 2. The datagram transmission device according to claim 1 wherein said first search means and said second search means perform said searches in parallel.

3. The datagram transmission device according to claim 1 wherein said transmission control rules that are searched are stored for each of said search means.

25 4. The datagram transmission device according to claim 1 wherein, if there are a plurality of entries of the same said transmission control rule, said transmission control rule is stored as one or other entry and storage position information

of said transmission control rule is stored as the other entries.

5 5. The datagram transmission device according to claim 4 wherein said storage position information is information in bit map form.

6. The datagram transmission device according to claim 1 wherein said second search means employs information belonging to the third layer of the protocol or a layer above this as said information.

7. The datagram transmission device according to claim 1 wherein said second search means employs information belonging to the second layer of the protocol as said information.

8. The datagram transmission device according to claim 7 wherein the information belonging to said second layer is information indicating a virtual channel identifier of asynchronous transfer mode.

9. The datagram transmission device according to claim 8 wherein said transmission control rule is orientation information.

20 10. The datagram transmission device according to claim 1 wherein said decision means, after inputting all of the search results of said first and second search means, calculates the logical product of these search results, and outputs the result of this calculation as the decision result.

25 11. The datagram transmission device according to claim 10 wherein, if said transmission control rule obtained by said first search means is only transmission route information,

said transmission route information is output as the decision result without carrying out said logical product calculation.

12. The datagram transmission device according to claim 11 wherein, if it is ascertained that said transmission control rule obtained by said first search means is only transmission route information, a control signal is output for interrupting the operation of said second search means.

13. The datagram transmission device according to claim 1 wherein, every time said decision means inputs said transmission control rule as the search result from said first and second search means, said decision means calculates the logical product between the logical product of said search results that have already been input and said newly input transmission control rule, and outputs the final calculation result as the decision result.

14. The datagram transmission device according to claim 13 wherein, if said transmission control rule obtained by said first search means is only transmission route information, said transmission route information is output as the decision result without subsequently performing said logical calculation.

15. The datagram transmission device according to claim 14 wherein, if it is ascertained that said transmission control rule obtained by said first search means is only transmission route information, a control signal is output for interrupting operation of said second search means.

16. The datagram transmission device according to claim 1 wherein said first and second search means perform searching using a dichotomizing search method.

17. The datagram transmission device according to claim 1
5 wherein said first and second search means perform searching using the 2^p search method.

18. The datagram transmission device according to claim 1 wherein said datagram transmission device is an Internet protocol router.

19. The datagram transmission device according to claim 1 wherein said datagram transmission device is an Internet protocol switch.

20. The datagram transmission device according to claim 1 wherein said datagram is an Internet protocol packet.